

## CLAIMS

1    1.    A radio frequency output power control system for use in communication systems that  
2    use a modulation scheme having a non-constant amplitude envelope, said power control system  
3    comprising:

4            a power amplifier having a power amplifier input for receiving an input signal with a  
5    non-constant amplitude envelope, a power control input for receiving a power control signal, and  
6    a power amplifier output for providing an amplified output signal;

7            a track and hold circuit for tracking a measured reference power signal that is  
8    representative of a modulation of the input signal; and

9            subtraction means for subtracting an output of said track and hold circuit from said  
10   measured reference power signal to provide a difference signal that is coupled to the power  
11   control input.

1    2.    The radio frequency output power control system as claimed in claim 1, wherein said  
2    track and hold circuit and said measured reference power signal are coupled to the input signal  
3    via a logarithmic power detect unit.

1    3.    The radio frequency output power control system as claimed in claim 1, wherein the track  
2    and hold circuit is responsive to a HOLD<sub>on</sub> signal.

1    4.    The radio frequency output power control system as claimed in claim 1, wherein said  
2    input signal is an IF output signal provided by a transmitter unit.

1    5.    The radio frequency output power control system as claimed in claim 1, wherein said  
2    input signal comprises baseband reference outputs from a transmitter unit.

1    6.    The radio frequency output power control system as claimed in claim 5, wherein said  
2    system further includes a pair of squaring units.

1    7.    The radio frequency output power control system as claimed in claim 1, wherein said  
2    track and hold circuit is coupled to said power amplifier via an error amplifier.

1    8.    The radio frequency output power control system as claimed in claim 1, wherein said  
2    system is employed to control power for a modulated signal with non-constant envelope.

1    9.    The radio frequency output power control system as claimed in claim 1, wherein a  
2    feedback signal is subtracted from an output signal of said subtraction means.

1    10.   The radio frequency output power control system as claimed in claim 1, wherein said  
2    system is further responsive to a  $TX_{Ramp}$  signal.

1    11.   The radio frequency output power control system as claimed in claim 1, wherein said  
2    system further includes a feedback logarithmic power detect unit.

1    12.   A radio frequency output power control system for use in communication systems that  
2    use a modulation scheme having a non-constant amplitude envelope, said power control system  
3    comprising:

4           a power amplifier having an input to receive an input signal with a non-constant  
5           amplitude envelope, a power control input for receiving a power control signal, and an output for  
6           providing an amplified output signal;

7           a track and hold circuit for tracking a reference signal;

8           a first combiner for providing a difference between said reference signal and an output  
9           signal of said track and hold circuit, and

10          a second combiner for providing a difference between a feedback signal and an output of  
11          said first combiner, wherein said power control signal is responsive to the difference between the  
12          feedback signal and the output of the first combiner.

1       13.    The radio frequency output power control system as claimed in claim 12, wherein said  
2       control system further includes a third combiner for providing a sum of a TX<sub>Ramp</sub> signal and an  
3       output of said second combiner, wherein said power control signal is responsive to the sum of  
4       the TX<sub>Ramp</sub> signal and the output of the second combiner.

1       14.    The radio frequency output power control system as claimed in claim 13, wherein said  
2       first combiner, said second combiner, and said third combiner are all provided in a single  
3       combiner unit.

1       15.    A radio frequency output power control system comprising:

2           a power amplifier coupled to an input signal;

3           a reference logarithmic unit coupled to a reference signal;

4           a track and hold circuit coupled to said reference signal;

5           a feedback logarithmic unit coupled to a feedback signal; and  
6           combiner means for providing a corrective signal to said power amplifier responsive to  
7    said reference signal, an output signal from said track and hold circuit, and said feedback signal.

1    16.    The radio frequency output power control system as claimed in claim 15, wherein said  
2    reference signal includes a modulated RF signal.

1    17.    The radio frequency output power control system as claimed in claim 15, wherein said  
2    reference signal includes a modulated IF signal.

1    18.    The radio frequency output power control system as claimed in claim 15, wherein said  
2    reference signal includes baseband I and Q signals.

1    19.    The radio frequency output power control system as claimed in claim 18, wherein said  
2    system is employed to control power for a modulated signal with non-constant envelope.

1    20.    The radio frequency output power control system as claimed in claim 15, wherein said  
2    combiner means is further responsive to a TX<sub>Ramp</sub> signal.

1    21.    The radio frequency output power control system as claimed in claim 15, wherein said  
2    track and hold circuit is responsive to a HOLD<sub>on</sub> signal.